LESSON MAKER PRO

# Product Detectives

*Multiply, estimate, and check your answers.*

**GRADE 4 · 4.N.2**

**4.N.2** "Solve real-world and mathematical problems using multiplication and division. Demonstrate fluency with multiplication and division facts with factors up to 12. Multiply 3-digit by 1-digit and 2-digit by 2-digit whole numbers..."

NAME _____ DATE _____

## BREAK IT APART

Break each two-digit factor into tens and ones. Multiply each part of one factor by each part of the other factor, then add the four products. Round the factors to nearby tens to check if your answer makes sense.

## WORKED EXAMPLE

Find 34 x 26.

1. Break apart the factors: 34 = 30 + 4 and 26 = 20 + 6.
2. Multiply 30 by each part: 30 x 20 = 600 and 30 x 6 = 180.
3. Multiply 4 by each part: 4 x 20 = 80 and 4 x 6 = 24.
4. Add the products: 600 + 180 + 80 + 24 = 884.

**Answer: 884**

## PRACTICE 6 problems

**1** Find 32 x 16.

**ANSWER** _____

**2** Find 24 x 18.

**ANSWER** _____

**3** Round each factor to the nearest ten to estimate 47 x 12. Then find the exact product.

**ANSWER** _____

**4** Find 36 x 25.

**ANSWER** _____

**5** Find 58 x 13.

**ANSWER** _____

**6** Round each factor to the nearest ten to estimate 29 x 43. Then find the exact product.

**ANSWER** _____

## APPLY IT Show your work

**1** A class makes 28 bundles of 15 friendship bracelets for a school fair. How many bracelets do they make?

WORK SPACE

**ANSWER** _____

**2** A school play sells 37 tickets for $24 each. The drama club spends $185 on costumes. How much money is left from ticket sales?

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

Two students multiply 39 x 21. One gets 819, and the other gets 8,190. Round each factor to the nearest ten to decide which answer is reasonable. Then find the exact product to check.

WORK SPACE AND ANSWER

ANSWER KEY

# Product Detectives

GRADE 4 · 4.N.2

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Find 32 x 16. | **512** |
| 2 | Find 24 x 18. | **432** |
| 3 | Round each factor to the nearest ten to estimate 47 x 12. Then find the exact product. | **Estimate: 500; exact product: 564** |
| 4 | Find 36 x 25. | **900** |
| 5 | Find 58 x 13. | **754** |
| 6 | Round each factor to the nearest ten to estimate 29 x 43. Then find the exact product. | **Estimate: 1,200; exact product: 1,247** |

## PART 2 · APPLY IT

1. **420 bracelets** Multiply 28 x 15 = 420.
2. **$703** Ticket sales bring in 37 x 24 = $888. Subtract the costume cost: $888 - $185 = $703.

## CHALLENGE

**819 is reasonable. Rounding gives 40 x 20 = 800, and the exact product is 39 x 21 = 819.**

Accept any correct multiplication strategy for exact products. For estimates, students should show the rounded factors specified in the question.